

CLAIMS

We claim:

1. A europium-activated barium magnesium aluminate phosphor containing an amount of a dopant selected from silicon, hafnium, zirconium or a combination thereof.
2. The phosphor of claim 1 wherein the phosphor contains from greater than 0 to about 2000 ppm silicon by weight.
3. The phosphor of claim 1 wherein the phosphor contains from about 100 to about 400 ppm silicon by weight.
4. The phosphor of claim 1 wherein the phosphor contains from about 100 to about 200 ppm silicon by weight.
5. The phosphor of claim 1 wherein the phosphor contains from greater than 0 to about 6500 ppm zirconium by weight.
6. The phosphor of claim 1 wherein the phosphor contains from about 300 to about 1300 ppm zirconium by weight.
7. The phosphor of claim 1 wherein the phosphor contains from about 300 to about 650 ppm zirconium by weight.
8. The phosphor of claim 1 wherein the phosphor contains from greater than 0 to about 12500 ppm hafnium by weight.
9. The phosphor of claim 1 wherein the phosphor contains from about 600 to about 2500 ppm hafnium by weight.
10. The phosphor of claim 1 wherein the phosphor contains from about 600 to about 1300 ppm hafnium by weight.

11. The phosphor of claim 1 wherein the phosphor contains from about 1 to about 5 weight percent europium.
12. The phosphor of claim 1 wherein the phosphor contains about 2 weight percent europium.
13. The phosphor of claim 11 wherein the phosphor contains from greater than 0 to about 2000 ppm silicon by weight.
14. The phosphor of claim 11 wherein the phosphor contains from greater than 0 to about 6500 ppm zirconium by weight.
15. The phosphor of claim 11 wherein the phosphor contains from greater than 0 to about 12500 ppm hafnium by weight.
16. A phosphor having a composition represented by $(\text{Ba}_{1-x}\text{Eu}_x)\text{MgAl}_{10}\text{O}_{17}:(\text{Hf},\text{Zr},\text{Si})_y$ where $0.05 \leq x \leq 0.25$ and $0 < y \leq 0.05$.
17. The phosphor of claim 16 wherein $0.0025 \leq y \leq 0.01$.
18. The phosphor of claim 16 wherein $0.0025 \leq y \leq 0.005$.
19. The phosphor of claim 16 wherein x is 0.1.
20. The phosphor of claim 17 wherein x is 0.1.
21. The phosphor of claim 18 wherein x is 0.1.